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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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Re: PMN P08-508/509 Consent Order

Dear [redacted]

EPA has reviewed DuPont's response to the EPA letter of June 27, 2012 concerning the Limited Approval of Certain Respirator Cartridges under the above-identified Consent Order, New Chemical Exposure Limit (NCEL) section, subsection (e)(2) (page 30) "Selection of Appropriate Respiratory Protection" for measured concentrations less than or equal to 50 times the NCEL. The respirator cartridges requested were: 1) MSA P100/OV, P/N 814923, 2) North OV/P100, P/N 7581P100, and 3) Scott 642 OV-P100. The following are limitations to this approval based on the results of the protection factor calculation provided by your Company from the contractor, [redacted], and determination of the most recent EPA review dated June 13, 2013. Enclosed in this letter is the document that explains the rationale for the responses.

2012 Limitations and EPA Response:

**Limitation 1a.** The tested cartridges must only be used with the same makes and models of the full facepiece air purifying respirators (APF=50) with which they were tested-- The limitation regarding use of cartridges with the respirators with which they were tested is removed.

**Limitation 1b.** and under a similar regime of temperature (25 degree C.)-- Since the cartridges were not tested over a range of temperatures, the tested cartridges are approved for use only between 15-35°C (59-95°F) until additional testing demonstrates effectiveness beyond this range

**Limitation 1c.** humidity (50%)–Approval for the use of the tested cartridges is only granted for use at relative humidity (RH) equal to or greater than 50% until further testing at dry conditions (e.g.<20% (RH) shows cartridge breakthrough in this regime.

CONCURRENCES

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and air flow rate (30L/min per cartridge) through the respirators, as used in the lab experiment.

**Limitation 1d and 2.** The flow rate used in the lab testing was the minimum flow rate for cartridge testing. If worker breathing rates vary on account of performing strenuous activities or because of the physical condition of the worker, then the Company must consult with EPA because additional testing at a higher flow rate could be required. No additional testing is required as related to the flow rate.

**Limitation 3.** Use of the tested full facepiece air purifying respirators with cartridges is permitted for a maximum use concentration of 0.0365 ppm (50 x 0.00073 ppm NCEL) for the PMN substance P08-508 for an 8-hour shift.

AND

**Limitation 4.** This approval is valid for use of the tested full facepiece air purifying respirators with cartridges against a singe contaminant only, i.e. the P08-508 PMN substance.

EPA has consolidated and rephrased limitations 3 and 4 into one updated EPA Limitation #3 so that both P-08-508 and P-08-509 are included. Therefore the **Updated** (EPA) Limitation #3 is as follows: Use of the tested cartridges with corresponding NIOSH-approved air purifying respirators with an APF of 50 or greater is approved for P-08-508 and P-08-509, with a maximum use duration of 6 hours for the cartridges. The tested cartridges must incorporate a P-100 prefilter if they are to be used for protection against the ammonium salt (P-08-509).

Application of a safety factor of 60% applied to 10 hours gives **6 hours of allowed use** until further testing to longer times (e.g., 20 hours) shows a longer limit (e.g., 12 hours with the safety factor) is valid. Also, cartridges must be replaced at the end of 6 hours in a work shift although it is reasonable to not include non-use (break) times in the total to determine a change out schedule. This could extend the change out schedule beyond 6 hours. Alternatively, longer testing could be done to demonstrate adequacy of the cartridges for a straight 12 hours.

**Updated Limitation 5.** If there is potential for inhalation exposure to multiple contaminants, i.e. other chemicals in addition to the P08-508 PMN substance, then the Company must consult with EPA because additional service life may be necessary to demonstrate that the tested full facepiece air purifying respirators with cartridges are appropriate for protection against all chemicals. The company must provide EPA with a list of chemicals (other than P-08-508 and P-08-509) that are present in the work sites along with their concentration. The identity and concentrations of the chemicals is necessary to assess their removal mechanism and to determine if they interfere with the removal of P-08-508. Additional testing of the cartridges might be required based on EPA's assessment of the additional chemicals.

**Former Limitation 6.** The tested cartridges must be discarded after a single shift not exceeding 10 hours. If extended cartridge change-out schedules (longer than one 10-hour shift) are desired, the company must consult with EPA as additional testing could be required to demonstrate that desorption and migration of contaminant vapor between shifts and during repeated storage and reuse does not occur. EPA has **deleted** this limitation since Updated EPA Limitation 3 addresses maximum use duration for cartridges. A partially-used cartridge for less than 6-hours should be discarded. at the end of the shift and workers provided with fresh cartridges for the next shift by DuPont.

If you have any questions about this matter please contact Rose Allison, the program manager who will coordinate the response.

Sincerely yours,

Greg Schweer, Chief
New Chemicals Management Branch
Chemical Control Division (7405M)

Enclosure

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